

Investment Frictions and Leverage Dynamics

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Abstract

I examine the effect of investment frictions on leverage dynamics, using a model of the firm whose investment projects are 1) indivisible and lumpy, and 2) subject to time-to-build, which is a time lag between when investment expenditures are made and when the investment begins to generate cash. The firm dynamically chooses the timing of its investments and the source of investment funding and can endogenously adjust its capital structure. The model predicts that a firm whose investments are lumpier and subject to longer time-to-build 1) has lower and more volatile leverage target and realized leverage ratios, 2) has faster reversion to its target, and 3) funds its new incremental investments with a greater fraction of equity. The model simulations also show that the target leverage ratio is temporarily lower for the periods prior to and after investments are made, where frictions amplify this property of the target. Cross sectional analysis of firms in the oil and gas extraction industries as well analysis across all industries reveals the evidence that small firms have more volatile investments and longer time-to-build, which may explain the observed differences in leverage dynamics across small and large firms. Regression analysis on the model-simulated data demonstrates that investment frictions can provide alternative interpretations of the empirical tests and some stylized facts documented in the recent empirical literature. For example, the investment frictions provide a rational explanation for why firms tend to raise equity following increases in their stock prices.